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NWRC
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Estimating the Value of Resident Canada Goose Damage Management

Wildlife Services (WS), a program of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, provides Federal leadership and expertise to resolve wildlife conflicts that threaten the Nation's agricultural and natural resources, human health and safety, and property. One area in which WS assists individuals, local governments, and businesses, particularly in the Eastern United States, is with reducing impacts associated with overabundant resident Canada goose populations.

Unlike migratory geese, resident Canada geese (*Branta canadensis*) breed and nest in the United States. From 1970 to 2010, resident Canada goose populations in the United States increased about 14-fold—from 250,000 to 3.5 million.

In the Eastern United States alone, resident Canada goose populations exceed 1 million and have increased by 2 percent each year during the last 10 years. A main factor contributing to their dramatic population growth is their tendency to nest in urban and suburban areas, where the geese have ideal habitat with few predators and where hunting cannot be used to control the population.

Though their resurgence is a conservation success story, problems arise when Canada goose numbers or densities increase to a level that is incompatible with human activities in an area. These problems include: overgrazing of grass, ornamental plants, and agricultural crops; accumulation of droppings and feathers in public-use areas; attacks on humans by geese during the nesting season or by food-aggressive birds; the fouling of reservoirs and swimming areas; and collisions with aircraft.

This factsheet highlights a case study assessment of Canada goose damage management in Union County, NJ. Assessments provide insights into the value associated with wildlife damage management and are an important tool for decisionmakers.



New Jersey has a large human population density and resident Canada goose population density, increasing the potential for conflicts.

Canada Goose Damage Management in Union County, New Jersey: A Case Study

In Union County, NJ, resident Canada geese create problems for people, parks, and recreation areas. In 2010, Union County requested Wildlife Services' (WS) assistance in initiating an Integrated Wildlife Damage Management Program (IWDMP) to reduce damage caused by resident Canada geese. The program includes a combination of both lethal and nonlethal methods, such as conducting education and outreach, recommending "no feeding" ordinances, managing habitats, applying exclusionary measures, employing harassment methods, providing reproductive control, and removing over abundant adult geese. By employing a variety of these techniques, the IWDMP works to manage damage by Canada geese to tolerable levels, while conserving the regional goose population and natural environment.



Figure 1: Resident Canada geese live year-round and nest south of the U.S.-Canada borders; migratory geese nest north of the border and migrate south during winter months.

Canada Goose Populations in Union County, NJ

Union County, NJ, lies in the Atlantic flyway (shown above), which is a flyway for millions of migratory birds annually. Several subspecies of resident Canada geese were introduced and established in the Atlantic flyway during the early 20th century. The resident goose population in New Jersey is believed to have originated from populations in adjacent States, from private breeders/hunters, and purposeful introductions. Union County is the third most human populated county in New Jersey and has many parks, golf courses, and water bodies that are especially attractive to geese. This high mix of people and geese increases the potential for conflict at parks.

Estimating Damage Associated with Geese

To gain a better understanding of the economic impacts of resident Canada geese to Union County, economists at the WS National Wildlife Research Center (NWRC) conducted an economic assessment of the county's resident Canada goose IWDMP and estimated the potential costs associated with damages in the absence of the program. The analysis focused specifically on damage costs associated with vegetation and turf maintenance, fecal removal, and reduced recreation and park user fees.

Economists collected information from published literature regarding the typical cost of damage management and park maintenance related to nuisance geese. This information was adjusted to 2010 dollars and provided realistic high

(\$61.77) and low (\$20.08) values for annual damage estimates per bird. The data was then used to estimate potential damage costs for Union County based upon three different bird population scenarios.

In the first scenario, economists assume the IWDMP maintains the resident Canada goose population at approximately 4,000 birds on average. In the second scenario, economists assume the population doubles in the absence of the IWDMP; and in the third scenario, economists assume the population triples to 12,000 birds in the absence of the IWDMP. From this analysis, economists noted that annual damage costs in Union County could potentially be as high as \$741,240 (\$61.77 per bird at 12,000 birds) or as low as \$80,320 (\$20.08 per bird at 4,000 birds) (Figure 2).

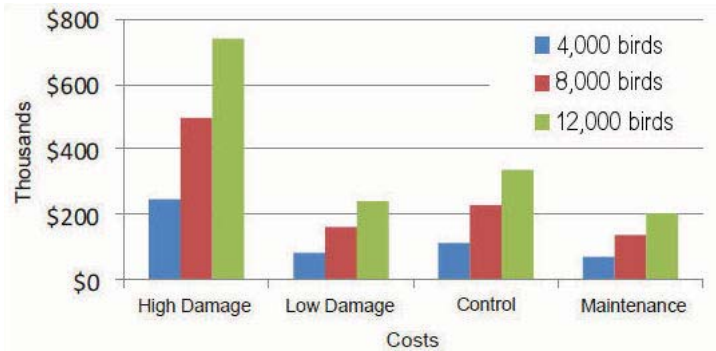


Figure 2: Estimated costs associated with increasing resident Canada goose populations in Union County, NJ.

NWRC economists also calculated simple control and maintenance cost estimates per bird in Union County based on current spending levels. An estimated control cost of \$28.36 per bird was based on the 2010 IWDMP budget (\$113,440) and the existing resident Canada goose population of 4,000 birds. An estimated maintenance cost per bird of \$17.09 was based on crew salaries, grass seed, and lawn care given the existing resident goose population. These estimates were then used to calculate potential savings associated with resident Canada goose management.

Potential Savings

Equipped with damage, maintenance, and control cost information, NWRC economists showed that as resident Canada goose populations increase, so do the costs associated with grounds maintenance and goose population control. However, findings also showed that the use of a management program such as the IWDMP could offset those costs. In fact, the economic assessment indicated that for every dollar spent on the control of Canada geese, potentially \$1.31 to \$5.56 could be saved. In both scenarios where the goose populations increased in Union County, economists found the implementation of the IWDMP led to a net savings.

Canada Goose Statistics:

- The U.S. Fish and Wildlife Service reports 3.5 million resident Canada geese in the United States.
- Atlantic flyway resident Canada goose populations exceed 1 million and have increased 2 percent per year during the last 10 years.
- In New Jersey, biologists estimated the State's population of resident Canada geese in 2010 to be 76,190.
- The majority of Canada goose damage pertains to fecal contamination at parks and recreation areas.
- For every dollar spent on Canada goose damage management in Union County, NJ, potentially \$1.31 to \$5.56 could be saved on damage and maintenance costs.

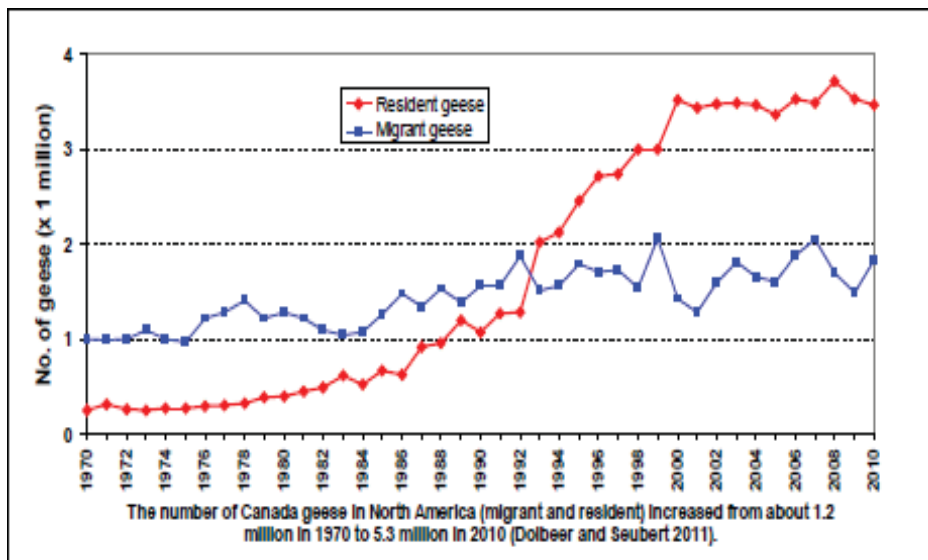


Figure 3: Resident Canada goose populations in the United States have increased 14-fold since 1970.



Additional Information

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